THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 42

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte SCOTT R. SUMMERFELT, HOWARD R. BERATAN
and BRUCE E. GNADE

Appeal No. 1997-2026
Application 08/317,108

ON BRIEF

Before LALL, DIXON and BLANKENSHIP, Administrative Patent Judges.

LALL, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection[1] of claims 2 to 4, 10 to 15, 24, and 28 to 33, all the pending claims in the

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[1] There were two amendments after the final rejection [paper nos. 29 and 32]. Both were denied entry by the Examiner [paper nos. 30 and 33].

application.

The disclosed invention pertains to electrical connections to high dielectric constant materials in microelectronics such as capacitors. One embodiment comprises a conductive lightly donor doped perovskite layer, and a high-dielectric-constant material layer overlaying the conductive lightly donor doped perovskite layer. The invention is further illustrated below by claim 24.

24. A method of forming a microelectronic capacitor structure on a semiconductor substrate in combination with other integrated circuits, said method comprising:

(a) forming a semiconductor substrate;

(b) forming an electrically conductive buffer layer on said semiconductor substrate;

(c) forming a conductive donor doped perovskite layer having between about 0.01 and about 0.3 mole percent doping on said buffer layer; and

(d) forming a high-dielectric-constant material layer on said perovskite layer, whereby said donor doped perovskite layer provides a chemically and structurally stable electrical connection to said high-dielectric-constant material layer.

The references relied on by the Examiner are:

Miyasaka et al. (Miyasaka) 5,053,917 Oct. 1, 1991

Uchino, Kenji, “Electrodes for Piezoelectric Actuators [Atuden Akuchueita-yo Denkyoku]”, Bulletin of the Ceramic Society of Japan, Ceramics Japan, Vol. 21, No. 3, pages 229-236 (1986). (Uchino)[2]

Claims 2 to 4, 10 to 15, 24, and 28 to 33[3] stand rejected under 35 U.S.C. § 112, first and second paragraphs, and also under 35 U.S.C. § 103.

Reference is made to Appellants’ brief and the Examiner's answer for their respective positions.

OPINION

We have considered the record before us, and we will reverse the rejection of claims 2 to 4, 10 to 15, 24, and 28 to 33 under 112 as well as the rejection under 35 U.S.C. § 103.

At the outset, we note that Appellants have elected to have all the claims on appeal to stand or fall together

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[2] We reference a translation by the Ralph McElroy Company, pages 1 to 21. A copy is supplied with this decision.

[3] Cover sheet for the final rejection lists claims 2 to 4, 10 to 15, 24, and 28 to 33 as being under rejection, however, the body of the rejection leaves out claims 10, 11, and 31 to 33. But, since Appellants elect to have all the claims on appeal stand or fall together, this discrepancy is not critical to our decision.

[brief, page 3], and present no separate arguments for any individual claims. We take as representative claim 24, the only independent claim in the case.

Rejections under 35 U.S.C. § 112

The Examiner has rejected claim 24 for lack of enablement and also for failing to particularly point out and distinctly claim the subject matter of the invention [answer, page 3]. The Examiner contends [id. 3] that "[t]he preamble of independent claim 24 requires the formation of a microelectronic capacitor structure ... but the recited process steps specify no such integrated circuit and therefore it is unclear where same is introduced."

The test for enablement is whether one skilled in the art could make and use the claimed invention from the disclosure coupled with information known in the art without undue experimentation. See United States v. Telectronics, Inc., 857 F.2d 778, 785, 8 USPQ2d 1217, 1223 (Fed. Cir. 1988), cert. denied, 109 S. Ct. 1954 (1989); In re Stephens, 529 F.2d 1343, 1345, 188 USPQ 659, 661 (CCPA 1976).

Thus, the dispositive issue is whether Appellants'

disclosure, considering the level of ordinary skill in the art as of the date of Appellants' application, would have enabled a person of such skill to make and use Appellants' invention without undue experimentation. The threshold step in resolving this issue is to determine whether the Examiner has met his burden of proof by advancing acceptable reasoning to support the alleged lack of enablement.

The Examiner has alleged that Appellants' recited steps in claim 24 do not describe the formation of the microelectronic capacitor recited in the preamble of the claim. Appellants argue [brief, page 4] that the invention "encompasses a method for forming a structure on an (sic) semiconductor substrate which is a part of an integrated circuit." Appellants further argue [id.] that "those skilled in the art recognize that a semiconductor substrate is the basic foundation for integrated circuits." Appellants also point to portions of the specification where capacitors are disclosed to be formed in a semiconductor environment using the substrate as the foundation.

We are of the view that Appellants have met the enablement requirements under 35 U.S.C. § 112, first paragraph.

The Examiner has not presented separate arguments regarding the rejection under the second paragraph of 35 U.S.C. § 112. We assume that the Examiner views the claims as indefinite for the same reasons as stated for the lack of enablement rejection.

The second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Johnson, 558 F.2d

1008, 1015, 194 USPQ 187, 193 (CCPA 1977). In making this determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id.

The Examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. § 112, second paragraph, is whether the claims meet the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. Some latitude in the manner of expression and the aptness of terms is permitted even though the claim language is not as precise as the Examiner might desire. If the scope of the invention sought to be patented cannot be determined from the language of the claims with a reasonable degree of certainty, a rejection of the claims under 35 U.S.C. § 112, second paragraph, is appropriate.

Here, we find that the steps which the Examiner has questioned above in regard to the vagueness of the claim 24 (same as for the lack of enablement rejection) are properly defined.

Therefore, we do not sustain the rejection of claim 24 under 35 U.S.C. § 112, first and second paragraphs. As other

claims are not argued separately, either by Appellants or the Examiner, the rejection of claims 2 to 4, 10 to 15, and 28 to 33 under the same grounds is also not sustained.

Rejection under 35 U.S.C. § 103

Claim 24 is rejected as being obvious over Uchino and Miyasaka under 35 U.S.C. § 103. The Examiner's position is that Uchino shows $BaTi0_3$ which has a high dielectric constant and also shows $BaTi0_3$ doped with 0.15 atom% of La which has a low resistance. The Examiner further asserts that this $BaTi0_3$ and the doped $BaTi0_3$ of Uchino can be obviously used in the capacitor forming process of Miyasaka [answer, pages 3 to 5].

Appellants argue [brief, pages 5 to 7] that Uchino and Miyasaka are not properly combinable because there is no motivation to combine. Appellants argue [id. 6 and 7] that "[t]he electrode structure in Uchino's patent (sic, publication) is a stacked structure of interleaved electrodes and dielectrics laminated together [and] ... laminate structures ... use a completely different manufacturing technology."

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985), cert. denied, 475 U.S. 1017 (1986); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re

Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

Furthermore, the Federal Circuit states that "[the] mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fitch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), citing In re Gordon, 773 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). "Obviousness may not be established using hindsight or in view of the teachings or suggestions of the inventor." Para-Ordnance Mfg. v. SGS Importers Int'l, 73 F.3d 1087, 37 USPQ 2d at 1239 (Fed. Cir. 1995), citing W. L. Gore & Assocs., v. Garlock, Inc., 721 F.2d at 1551, 1553, 220 USPQ at 311, 312-13 (Fed. Cir. 1983).

Following the above precepts, we agree with Appellants. The claimed process by its very nature requires high precision thin-film techniques such as chemical vapor deposition. The Examiner has not convinced us why an artisan would look to Uchino (which involves a totally different process) to combine with Miyasaka (which involves the thin-film technology) to

come up with the invention of claim 24, without using the Appellants' disclosure as a road map. Thus, we do not sustain the obviousness rejection of claim 24 and the grouped claims 2 to 4, 10 to 15, and 28 to 33 over Uchino and Miyasaka.

DECISION

The decision of the Examiner rejecting claims 2 to 4, 10 to 15, 24, and 28 to 33 under 35 U.S.C. § 112, first and second paragraphs and under 35 U.S.C. § 103 is reversed.

REVERSED

PARSHOTAM S. LALL Administrative Patent Judge	)	
JOSEPH L. DIXON Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
HOWARD B. BLANKENSHIP Administrative Patent Judge	)	

PSL/ki

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